

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Launch Vehicles in Service or in Development (1)

Author: Mr. Jonathan Hofeller
Space Exploration Technologies, United States, jonathan@spacex.com

Mr. Brian Bjelde
SpaceX, United States, bjelde@spacex.com

SPACEX REACHES ORBIT: FALCON 1 LAUNCH VEHICLE FLIGHT 4 AND FLIGHT 5 RESULTS
AND FUTURE DEVELOPMENTS

Abstract

The Falcon 1 successfully achieved orbit making SpaceX the first private company to place a liquid fueled rocket into orbit! Next up – the Korean built, Malaysian satellite, Razaksat, is scheduled for flight in April 2009 from the SpaceX launch complex in the Central Pacific Marshall Islands' Kwajalein Atoll. The vehicle is designed above all for high reliability, followed by low cost and a benign flight environment. It is a two-stage, liquid oxygen and rocket grade kerosene (RP-1) powered launch vehicle capable of placing a 425 kg satellite into a 185km circular orbit, inclined 9.1 degrees. Falcon 1 combines a re-usable, turbo-pump fed first stage powered by a single SpaceX Merlin engine with a pressure fed second stage powered by our Kestrel engine and capable of multiple re-starts. As a truly commercial company, SpaceX has successfully built both a domestic and international customer base. With several small spacecraft opportunities, SpaceX is building relationships with satellite manufactures and customers throughout the world, including South Korea's SaTReCi who is building both the Razaksat and DubaiSat payloads. SpaceX wishes to discuss opportunities for future collaboration with various international customers.

Consistent with SpaceX's corporate philosophy of rapid and continuous improvement, Falcon 1 has a planned evolution path which will include significant upgrades based upon experience from previous missions and our design work on its sister vehicle, the Falcon 9. Beginning in the second quarter of 2010, the enhanced 'Falcon 1e' will become SpaceX's standard small launch vehicle with upgraded performance capable of placing 1000kg into LEO. An overview of the Falcon 1e upgrades and description on how they will positively impact the satellite community are discussed.